REVIEW: Scientific Notation

Name _____

Key Concept and Vocabulary

A number is written in **scientific notation** when it is represented as the product of a factor and a power of 10. The factor must be at least 1 and less than 10.

The factor is at least 1 and less than 10. The power of 10 has an integer exponent.

6.3×10^5

Writing Numbers in Standard Form

When writing a number from scientific notation to standard form, the absolute value of the exponent tells you how many places to move the decimal point.

Negative exponent

Move the decimal point to the left.

$6.1 \times 10^{-3} = 0.0061$ (3)

Positive exponent

Move the decimal point to the right.

$2.75 \times 10^5 = 275{,}000$ (5)

Writing Numbers in Scientific Notation

Step 1: Move the decimal point to the right of the first nonzero digit.

Step 2: Count the number of places you moved the decimal point. This determines the exponent of the power of 10.

Number greater than or equal to 10

Use a positive exponent when you move the decimal point to the left.

$3400 = 3.4 \times 10^3$

Number between 0 and 1

Use a negative exponent when you move the decimal point to the right.

$0.00018 = 1.8 \times 10^{-4}$

Skill Examples

1. $1.66 \times 10^{-5} = 0.0000166$ (5)
2. $3.1 \times 10^6 = 3{,}100{,}000$ (6)
3. $0.033 = 3.3 \times 10^{-2}$ (2)
4. $2400 = 2.4 \times 10^3$ (3)

PRACTICE MAKES *PURR*-FECT®

Check your answers at BigIdeasMath.com.

Write the number in standard form.

5. $9.6 \times 10^7 =$ 96,000,000
6. $2 \times 10^{-6} =$ 0.000002
7. $7.875 \times 10^4 =$ 78,750
8. $4.53 \times 10^{-4} =$ 0.000453
9. $8.9 \times 10^{-7} =$ 0.00000089
10. $5.16 \times 10^8 =$ 516,000,000

Write the number in scientific notation.

11. 80,000,000 = 8×10^7
12. 0.00815 = 8.15×10^{-3}
13. 8,135,000,000 = 8.135×10^9
14. 0.000051 = 5.1×10^{-5}
15. 0.00000009 = 9×10^{-8}
16. 1,784,000 = 1.784×10^6